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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,888	10/30/2003	Daniel R. Tretter	200314885-1	8499

22879 7590 04/05/2007
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EXAMINER

KRASNIC, BERNARD

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/696,888

Applicant(s)

TRETTER ET AL.

Examiner

Bernard Krasnic

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1-26-2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The amendment filed 1/26/2007 have been entered and made of record.

2. In response to the amendments filed on 1/26/2007:

The "Objection to Drawings" have been entered and therefore the Examiner withdraws the objections to the drawings.

The "Objections to Specification" have been entered and therefore the Examiner withdraws the objections to the specification.

The "Claim Objections" have been entered and therefore the Examiner withdraws the objections to the claims.

The "35 U.S.C. 101 Rejections" have been entered and therefore the Examiner withdraws the objections to the specification.

3. Applicant's arguments with respect to independent claims 1, 10, 19, 27, 31, and 37 have been considered but are moot in view of the new ground(s) of rejection. The Gibbon reference previously used to reject independent claims 1 and 10, and the Gibbon in view of Park references previously used to reject independent claims 19, 27, 31, and 37 require an additional reference Messing et al (US 6,466,618 B1, this reference was disclosed and used as part of the rejections in the Examiners original Non-Final Office Action) because the applicant has included the further limitation "wherein one of the first type of grid and the second type of grid is a non-rectangular

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grid” to the independent claims 1, 10, 19, 27, 31, and 37 (see Applicants Reply – page 4, lines 6-7 of claim 1, page 5, lines 6-7 of claim 10, etc.). Obviously Gibbon and Park either alone or in combination do not teach this amended limitation to the independent claims, therefore Messing in view of these references is used to refute the amended independent claims 1, 10, 19, 27, 31, and 37.

4. Applicant's arguments filed 1/26/2007 have been fully considered but they are not persuasive.

The Applicant alleges, “There is no teaching or suggestion in Gibbon ...” in page 13, and states respectively that the Gibbon reference does not teach for independent claims 1 and 10, a second type of grid that is different than the first type of grid, and that Gibbon does not teach the amended limitation that “one of the first type of grid and the second type of grid is a non-rectangular grid”. However, Gibbon does disclose a different type of grid, in that the low-resolution images are comprised of a smaller grid size when compared to the high-resolution image which definitely is considered as a different type of grid. The Applicant has read a limitation to the word “type” which just isn't claimed in independent claims 1 and 10. In response to the amended limitation, the Examiner agrees that Gibbon does not disclose the further amended limitation, however, the Examiner has used Messing to reject this further limitation as discussed above and in the 35 U.S.C. 103 rejections.

The Applicant alleges, “Since dependent claims 6, 7, 15, and 16 further ...” in page 14, and states respectively that the rejections toward dependent claims 6, 7, 15,

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and 16 should be withdrawn due to the Applicants arguments and amendment toward claims 1 or 10. However, as discussed above and in the 35 U.S.C. 103 rejections, claims 1 or 10 even after the amendment are still not patentable over the prior art and therefore the rejections on dependent claims 6, 7, 15, and 16 still remain.

The Applicant alleges, "Amended independent claim 19 recites ..." in page 14, "Amended independent claim 27 recites ..." in page 14, "Amended independent claim 31 recites ..." in page 15, "Amended independent claim 37 recites ..." in page 16, and states respectively that the Gibbon reference does not teach for independent claims 19, 27, 31, and 37, a second type of grid that is different than the first type of grid, and that Gibbon and Park either alone or in combination do not teach the amended limitation that "one of the first type of grid and the second type of grid is a non-rectangular grid". However, Gibbon does disclose a different type of grid, in that the low-resolution images are comprised of a smaller grid size when compared to the high-resolution image which definitely is considered as a different type of grid. The Applicant has read a limitation to the word "type" which just isn't claimed in independent claims 19, 27, 31, and 37. In response to the amended limitation, the Examiner agrees that Gibbon and Park either alone or in combination do not disclose the further amended limitation, however, the Examiner has used *Messing* to reject this further limitation as discussed above and in the 35 U.S.C. 103 rejections.

The Applicant alleges, "In view of the above, Gibbon and Park ..." in page 14, in page 15, in page 16, and in page 17 respectively, and states respectively that the rejections toward dependent claims 24, 30, 34, and 40 should be withdrawn due to the

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Applicants arguments and amendment toward claims 19, 27, 31, and 37. However, as discussed above and in the 35 U.S.C. 103 rejections, claims 19, 27, 31, and 37 even after the amendment are still not patentable over the prior art and therefore the rejections on dependent claims 24, 30, 34, and 40 still remain.

The Applicant alleges, "Since dependent claims 8, 9, 17, 18, 25, 26, 35, 36, 41, and 42 further ..." in page 17, and states respectively that dependent claims 8, 9, 17, 18, 25, 26, 35, 36, 41, and 42 should be withdrawn due to the Applicants arguments and amendment toward claims 1, 10, 19, 31, and 37. However, as discussed above and in the 35 U.S.C. 103 rejections, claims 1, 10, 19, 31, and 37 even after the amendment are still not patentable over the prior art and therefore the rejections on dependent claims 8, 9, 17, 18, 25, 26, 35, 36, 41, and 42 still remain.

The Applicant alleges, "Claims 2-5, 11-14, 20-23, 28, 29, 32, 33, 38, and 39 were rejected ..." in page 17, and states respectively that dependent claims 2-5, 11-14, 20-23, 28, 29, 32, 33, 38, and 39 should be withdrawn due to the Applicants arguments and amendments toward claims 1, 10, 19, 27, 31, and 37. However, as discussed above and in the 35 U.S.C. 103 rejections, claims 1, 10, 19, 27, 31, and 37 even after the amendment are still not patentable over the prior art and therefore the rejections on dependent claims 2-5, 11-14, 20-23, 28, 29, 32, 33, 38, and 39 still remain.

The Applicant alleges, "Claims 2-5, 11-14, 20-23, 28, 29, 32, 33, 38, and 39 are also further distinguishable ..." in pages 17-18, and states respectively that "as one example, claim 2", "Gibbon does not teach or suggest receiving image data for an image on a rectangular grid, and generating a first sub-frame and a second sub-frame

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corresponding to the image data on a diamond grid". The Examiner agrees, and that is why Messing was used in view of Gibbon to reject claim 2. But the Applicant then alleges, "Messing and Park also do not teach or suggest receiving image data ..." in page 18, and states respectively that Messing discloses a technique for extracting color images from a low resolution CCD sensor and samples the green color field on a quincunx grid which the Applicant states does not teach or suggest receiving image data on a rectangular grid and generating a first and second sub-frame on a diamond grid. However the Examiner disagrees, the receiving image is a high resolution image (see Messing, Fig. 6, the top image 72) which is on a rectangular grid and it generates low resolution sub-frame which are on a diamond grid (see Messing, Fig. 6, the bottom image 78, the high resolution image is sampled to produce the green low resolution sub-frame which is placed on an irregular grid or in other words on a quincunx grid or in other words on a diamond grid). Further discussions will be explored in the 35 U.S.C. 103 rejections below.

The Applicant alleges, "There is also no suggestion to combine Gibbon and Messing ..." in pages 18-19, and states respectively that Messings techniques for generating high-resolution printed copies of images from a low-resolution source does not teach or suggest superimposing projection or generating sub-images for superimposing projection. However the Examiner disagrees, because as stated above Messing teaches the receiving image is a high-resolution image (see Messing, Fig. 6, the top image 72) and produces low resolution images (see Messing, Fig. 6, the bottom images) and with these low-resolution images constructs a high resolution image which

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is done through superimposition (see Messing, col. 5, lines 1-3, the final high resolution image is "constructed" using the low resolution images). Therefore there is suggestion to combine Gibbon and Messing because both deal with the same relative art in that they both are creating a high-resolution image using low-resolution images. Further discussions will be explored in the 35 U.S.C 103 rejections below.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon et al (US 2003/0020809 A1) in view of Messing et al (US 6,466,618 B1).

Re Claim 1: Gibbon discloses a method of displaying an image with a display device (see paragraph [0001], [0031], lines 1-7), the method comprising of receiving image data on a first type of grid (see paragraphs [0012], [0007], lines 9-10, "high resolution of the source material"); generating a first sub-frame (see Fig. 5, Ref. No. 33, paragraphs [0034], lines) and a second sub-frame (see Fig. 5, Ref. No. 34, paragraphs [0034]) corresponding to the image data, the first and the second sub-frames each generated on a second type of grid that is different than the first type of grid (low resolution or in other words smaller grid size is considered to be a different grid, paragraph [0014], lines 3-4), wherein one of the first type of grid and the second type of grid is a non-

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rectangular grid; and alternating between displaying the first sub-frame in a first position and displaying the second sub-frame in a second position spatially offset from the first position (see Fig. 7, paragraph [0036], [0014], [0035]).

However, Gibbon fails to disclose one of the first type of grid and the second type of grid is a non-rectangular grid.

Messing discloses one of the first type of grid / rectangular grid and the second type of grid / irregular grid or quincunx grid or a diamond grid is a non-rectangular grid (see Fig. 6, the first type rectangular grid is on the high resolution image 72 and the second type diamond grid is on the low resolution image 78, col. 5, lines 1-3, col. 6, lines 8-34, col. 7, lines 49-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gibbon's method using Messing's teachings by including Messing's first type rectangular grid and second type diamond grid to Gibbon's receiving image and Gibbon's sub-frames in order to be able to construct a high-resolution image from low-resolution images which incorporate different geometric grids (see Messing, col. 5, lines 1-3, col. 6, line 29).

As to claim 10, the claim is the corresponding systems claim to claim 1 respectively. The discussion is addressed with regard to claim 1.

Re Claims 2 and 11 respectively: Messing further discloses first type of grid is a rectangular grid (see Fig. 6, the image 72 is on a regular rectangular grid, col. 6, lines 8-

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34) and the second type of grid is a diamond grid (see Fig. 6, the image 78 is on a irregular grid or in other words on a quincunx grid or in other words on a diamond grid, col. 6, lines 8-34).

Re Claims 3 and 12 respectively: Messing further discloses that the image data includes rectangular-shaped pixels on the rectangular grid (see Fig. 6, the image 72 is on a regular rectangular grid, col. 6, lines 8-34) and the first and second sub-frames (Gibbon discloses the first and second sub-frames) each include diamond-shaped pixels on the diamond grid (see Fig. 6, the image 78 is on a irregular grid or in other words on a quincunx grid or in other words on a diamond grid, col. 6, lines 8-34).

Re Claims 4 and 13 respectively: Messing further discloses that the first type of grid is a diamond grid (see Fig. 7, Ref. No. 78, see col. 6, lines 23-35, green irregular grid or in other words the quincunx grid or in other words the diamond grid) and the second type of grid is a rectangular grid (see Fig. 7, Ref. No. 106, see col. 6, lines 23-35).

Re Claims 5 and 14 respectively: Messing further discloses that the image data includes diamond-shaped pixels on the diamond grid (see Fig. 7, Ref. No. 78, see col. 6, lines 23-35, green irregular grid or in other words the quincunx grid or in other words the diamond grid) and the first and the second sub-frames (Gibbon discloses the first and second sub-frames) each include rectangular-shaped pixels on the rectangular grid (see Fig. 7, Ref. No. 106, see col. 6, lines 23-35).

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7. Claims 6-7 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon as modified by Messing as applied to claims 1 and 10 above, and further in view of Park ("Super-Resolution Image Reconstruction: A Technical Overview"; IEEE Signal Processing Magazine vol 20, pages 21-36, May 2003). The teachings of Gibbon as modified by Messing have been discussed above.

However, as recited in claims 6 and 15, Gibbon as modified by Messing does not disclose or fairly suggest how the relationship between sub-frame values and high resolution image values correspond, the relationship being based on minimization of an error metric between the high resolution image values and a simulated high resolution image.

Park discloses how the relationship between sub-frame values and high resolution image values correspond, the relationship being based on minimization of an error metric between the high resolution image values and a simulated high resolution image (see page 30, paragraph 2, "Reconstruction results by POCS ...", a simulated high resolution image is considered because the reconstruction results are after several iterations).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gibbon's system as modified by Messing, using Park's teaching by including the step of applying the POCS algorithm in order to solve the restoration problem to estimate the high resolution image (simulated high resolution image) (see Park, page 29, Section – Projection onto Convex Sets Approach, paragraph 1).

However, as recited in claims 7 and 16, Gibbon as modified by Messing does not disclose or fairly suggest how the simulated image is based on a convolution of the first and the second sub-frames with an interpolating filter.

Park discloses the simulated image is based on a convolution of the first and the second sub-frames with an interpolating filter (see page 25, Section: Nonuniform Interpolation Approach, a simulated image is considered because the reconstruction results are after several iterations).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gibbon's system as modified by Messing, using Park's teachings by including the step of applying the interpolation algorithm in order to go from a low resolution grid onto a high resolution grid (see Park, Fig. 6, page 25, Section - Nonuniform Interpolation Approach, paragraph 1) as well as estimate the high resolution image (simulated high resolution image).

8. Claims 19-24, 27-34, and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon in view Messing and further in view of Park ("Super-Resolution Image Reconstruction: A Technical Overview"; IEEE Signal Processing Magazine vol 20, pages 21-36, May 2003).

Re Claim 19: Gibbon discloses a system for generating low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution

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image (see paragraphs [0012], lines 12-14, [0014], lines 4-7), the system comprising the means for receiving a first high resolution image on a first type of grid (see paragraphs [0012], [0007], lines 9-10, "high resolution of the source material"); means for storing a relationship between low-resolution sub-frame values and high resolution image values, the relationship based on minimization of an error metric between the high resolution image values and a simulated high resolution image that is a function of the low-resolution sub-frame values; and means for generating a first plurality of low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution image (see paragraphs [0012], lines 12-14, [0014], lines 4-7) based on the first high resolution image and the stored relationship, each of the low resolution sub-frames generated on a second type of grid (see Fig. 5, Ref. No. 33-34, paragraph [0034], [0014], lines 3-4, low resolution or in other words smaller grid size is considered to be a different grid, paragraph), wherein one of the first type of grid and the second type of grid is a non-rectangular grid.

However, Gibbon fails to disclose one of the first type of grid and the second type of grid is a non-rectangular grid and exactly how the relationship between sub-frame values and high resolution image values correspond, the relationship being based on minimization of an error metric between the high resolution image values and a simulated high resolution image.

Messing discloses one of the first type of grid / rectangular grid and the second type of grid / irregular grid or quincunx grid or a diamond grid is a non-rectangular grid (see Fig. 6, the first type rectangular grid is on the high resolution image 72 and the

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second type diamond grid is on the low resolution image 78, col. 5, lines 1-3, col. 6, lines 8-34, col. 7, lines 49-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gibbon's method using Messing's teachings by including Messing's first type rectangular grid and second type diamond grid to Gibbon's receiving image and Gibbon's sub-frames in order to be able to construct a high-resolution image from low-resolution images which incorporate different geometric grids (see Messing, col. 5, lines 1-3, col. 6, line 29).

However, Gibbon as modified by Messing does not disclose or fairly suggest respectively exactly how the relationship between sub-frame values and high resolution image values correspond, the relationship being based on minimization of an error metric between the high resolution image values and a simulated high resolution image.

Park discloses how the relationship between sub-frame values and high resolution image values correspond, the relationship being based on minimization of an error metric between the high resolution image values and a simulated high resolution image (see page 30, paragraph 2, "Reconstruction results by POCS ...", a simulated high resolution image is considered because the reconstruction results are after several iterations).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gibbon's system as modified by Messing, using Park's teaching by including the step of applying the POCS algorithm in order to solve the restoration problem to estimate the high resolution image (simulated high

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resolution image) (see Park, page 29, Section – Projection onto Convex Sets Approach, paragraph 1).

As to claim 27, the claim is the corresponding computer-readable medium claim to claim 19 respectively. The discussion is addressed with regard to claim 19.

As to claim 31, the claim is the corresponding method claim to claim 19 respectively. The discussion is addressed with regard to claim 19.

As to claim 37, the claim is the corresponding system claim to claim 19 respectively. The discussion is addressed with regard to claim 19.

As to claims 20-24, the claims are the corresponding system claims to claims 2-5 and 7 respectively. The discussion is addressed with regard to claims 2-5 and 7.

As to claims 28-30, the claims are the corresponding computer-readable medium claims to claims 2, 4, and 7 respectively. The discussion is addressed with regard to claims 2, 4, and 7.

As to claims 32-34, the claims are the corresponding method claims to claims 2, 3, and 7 respectively. The discussion is addressed with regard to claims 2, 3, and 7.

As to claims 38-40, the claims are the corresponding system claims to claims 2, 3, and 7 respectively. The discussion is addressed with regard to claims 2, 3, and 7.

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9. Claims 8-9, 17-18, 25-26, 35-36, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbon as modified by Messing and Park as applied to the claims above, and further in view of Nomura et al (US 6,990,249 B2) and Tanaka et al (JP 54136135 A). The teachings of Gibbon as modified by Messing and Park have been discussed above.

However, as recited in claims 8-9, 17-18, 25-26, 35-36, and 41-42, Gibbon as modified by Messing and Park does not disclose or fairly suggest specifically that the interpolation filter includes five filter coefficients, four coefficients of which are one-eighth and one coefficient which is one-half, or four coefficients of which are one-half and one coefficient which is one.

Nomura discloses that the interpolation filter includes five filter coefficients (see Fig. 18a, general spatial filter divided by a constant Const), four coefficients of which are one-eighth and one coefficient which is one-half (see Fig. 18a, consider $\beta = \frac{1}{8}, \alpha = \frac{1}{2}, \gamma = 0$), or four coefficients of which are one-half and one coefficient which is one (see Fig. 18a, consider $\beta = \frac{1}{2}, \alpha = 1, \gamma = 0$). Tanaka specifically discloses the interpolation filter with five filter coefficients, four coefficients of which are one-eighth and one coefficient which is one-half (see Fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Gibbon's system as modified by Messing and Park, using Nomura's and Tanaka's teachings by including the specific five coefficient interpolation filter in order to interpolate one image to another without introducing much noise which could deteriorate the detailed information.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jaynes et al discloses super-resolution overlay in multi-projector displays; Tabata discloses image display apparatus; Childers discloses displaying least significant color image bit-planes in less than all image sub-frame locations.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-

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1357. The examiner can normally be reached on Mon-Thur 9:00am-3:00pm and every other Friday 9:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic
March 29, 2007


JINGGE WU
SUPERVISORY PATENT EXAMINER